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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,758	02/28/2005	Kazutomo Hoshino	8097-1002	1137
<div>465                      7590                      03/06/2008</div> <div>YOUNG &amp; THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314</div>				
EXAMINER				
AUSTIN, AARON				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/525,758

**Applicant(s)**

HOSHINO ET AL.

**Examiner**

AARON S. AUSTIN

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10 and 12-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not appear to disclose a substrate of baked-mud or porcelain, the subject matter of claim 16.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuhisa et al. (JP2001213666A).

JP '666 teaches a jig for calcining an electronic component comprising a substrate and a zirconia layer (see the English translation paragraphs [0001]-[0003]). The zirconia layer is formed by bonding coarse zirconia particles of 30 to 500 microns and fine zirconia particles of 0.1 to 10 microns using a liquation binding material (see the English translation paragraphs [0007]-[0008]). The liquation binding material serves as a partially fused bonding agent and is formed of oxide mixtures such as aluminum oxides, yttria (a transition metal oxide), and MgO (an alkaline earth metal oxide) (see the English translation paragraphs [0011]-[0012]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 12-13, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuhisa et al. (JP2001213666A) in view of Horiuchi et al. (JP2002128582A).

JP '666 teaches a jig for calcining an electronic component comprising a substrate and a zirconia layer (see the English translation paragraphs [0001]-[0003]). The zirconia layer is formed by bonding coarse zirconia particles of 30 to 500 microns and fine zirconia particles of 0.1 to 10 microns using a liquation binding material (see the English translation paragraphs [0007]-[0008]). The liquation binding material serves as a partially fused bonding agent and is formed of oxide mixtures such as aluminum oxides, yttria (a transition metal oxide), and MgO (an alkaline earth metal oxide) (see the English translation paragraphs [0011]-[0012]).

JP '666 does not disclose the bonding agent as comprising alumina-magnesia-based spinel composite oxide.

JP '582 discloses a jig for electronic component baking having a layer comprising a granule bond phase containing alumina, alumina-magnesia spinel complex oxide, zirconia, alkaline earth oxides, or mixtures thereof (see the English translation at

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paragraph [0023]). Therefore, as JP '582 clearly teaches alumina-magnesia spinel complex oxide provides the advantage of a granule bond phase exchangeable with alumina and suitable for use in forming a layer for a jig, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use an alumina-magnesia spinel complex oxide as a functional equivalent to alumina in forming the bond phase of JP '666.

Regarding claims 12 and 13, in addition to the arguments set forth above with respect to the 35 USC 102(b), JP '582 teaches a jig for electronic component baking having a layer comprising a granule bond phase containing alumina, alumina-magnesia spinel complex oxide (a complex alkaline earth oxide), zirconia (a transition metal oxide) and/or alkaline earth oxides. Therefore, as JP '582 clearly teaches combinations of transition metal oxides, alkaline earth metal oxides, and alumina-magnesia spinel complex oxide provide the advantage of a granule bond phase for use in forming a layer for a jig, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use combinations of transition metal oxides and alkaline earth metal oxides in forming the bond phase of JP '666.

Regarding claim 17, the weight ratio of coarse zirconia to the fine zirconia plus the partially fused bonding agent is between (see the English translation claim 3).

Regarding claim 18, a weight ratio of the partially fused bonding agent to the coarse zirconia plus the fine zirconia plus the partially fused bonding agent is 3-25 wt.% (see the English translation paragraph [0011]).

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuhisa et al. (JP2001213666A) in view of Horiuchi et al. (JP2002128582A), and further in view of Yasuhisa et al. (JP2002114578A).

JP '666 in view of JP '582 teaches a jig for calcining an electronic component as described above. Further, the zirconia layer of JP '666 is applied over a base material such as an alumina system ingredient, an alumina-magnesia system spinel ingredient, etc. (see the English translation paragraphs [0002] and [0013]).

JP '666 does not teach the base material as being an intermediate layer overlying a substrate.

JP '578 teaches an electronic parts sintering jig comprising a substrate over which is applied an intermediate layer covered by a zirconia surface layer (abstract). The intermediate layer comprises a metallic oxide such as an aluminum oxide (alumina) or alumina-magnesia spinel (see the English translation paragraph [0007]). Therefore, as JP '578 clearly teaches an intermediate layer comprising the same components as the base material of JP '666 provides the advantage of an effective intermediate layer excellent in peeling resistance and reinforcement (see the English translation paragraph [0004]), it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to form the electronic component of JP '666 with the base layer as an intermediate layer of a calcining jig as taught by JP '578. Thus the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuhisa et al. (JP2001213666A) in view of Horiuchi et al. (JP2002128582A), and further in view of Yasuhisa et al. (JP2002114578A) and Higuchi et al. (US 3,860,432).

JP '666 in view of JP '582 and JP '578 teaches a jig for calcining an electronic component as described above.

JP '578 teaches the substrate over which the intermediate layer and zirconia layer are applied has warm strength and is usually comprised of an alumina mullite system (see the English translation paragraph [0002]). The substrate is not specifically taught as being comprised of baked-mud or porcelain.

Higuchi et al. teach a porcelain electric insulator comprising mullite and alumina (claim 4). Therefore, as Higuchi et al. clearly teach porcelain may be comprised of an alumina mullite system, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to form the substrate of JP '578 taught as usually comprised of an alumina mullite system (see the English translation paragraph [0002]) of porcelain. Thus the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

### ***Response to Arguments***

Applicant's arguments, see the Remarks, filed 11/28/07, with respect to objection to claims 10, 11, 12, and 13; rejection of claim 16 under 35 U.S.C. 112, first paragraph, and rejection of claims 10 under 35 U.S.C. 102(b) have been fully considered and are

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persuasive in light of the present amendments. These objections and rejections have been withdrawn.

Applicant's arguments with respect to claims 10 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed with respect to rejection of claims 12 and 13 under 35 USC 102(b) have been fully considered but they are not persuasive.

In particular, Applicant argues JP '666 does not teach a partially-fused bonding agent comprising a mixture of metal oxides selected from the group consisting of rare earth metal oxides, transition metal oxides, alkaline earth metal oxides, and alumina-magnesia-based spinel type composite oxides. However, the liquation binding material serves as a partially fused bonding agent and is formed of oxide mixtures of metals such as aluminum oxides, yttria (a transition metal oxide), and MgO (an alkaline earth metal oxide) (see the English translation paragraphs [0011]-[0012]).

In response to applicant's argument that the oxides of JP '666 other than alumina provide a stabilizing function rather than a binding function, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).



***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In particular, Hoshino et al. (JP2001322875A) teach a jig having an intermediate layer consisting of two or more metallic oxides selected from aluminum oxide, zirconium oxide, yttrium oxide, calcium oxide, magnesium oxide, strontium oxide, and alumina-magnesia spinel complex oxide.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John J. Zimmerman/  
Primary Examiner, Art Unit 1794

/Aaron Austin/